RENUMBERED CLAIMS

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Cancelled)
2. (Cancelled)
3. (Cancelled)
4. (Cancelled)
5. (Cancelled)
6. (Cancelled)
7. (Cancelled)
8. (Cancelled)
9. (Cancelled)
10. (Cancelled)
11. (Cancelled)
12. (Currently amended): A ball valve for handling very corrosive fluids and abrasive solid particles in a pressure leaching process, comprising:

    a valve body;

    a ball centrally positioned in the valve body and having a central passage rotatable in the valve body between open and closed positions;

    at least one seat disposed between the ball and the valve body;

    wherein the ball and seat each comprise a titanium substrate and a titania coating;

PAGE 5/20 * RCVD AT 1/19/2004 10:00:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729310 * CSID:7136522556 * DURATION (mm-ss):09-16

wherein the titania coating has a grain size of less than 500 nm.

13. (Original): The ball valve of claim ~~12~~ wherein the coating comprises a titania phase and a phase immiscible with the titania phase in a proportion effective to inhibit grain growth.

14. (Original): The ball valve of claim ~~13~~ wherein the immiscible phase comprises from 5 to 45 percent by volume of the coating.

15. (Original): The ball valve of claim ~~13~~ wherein the immiscible phase is selected from zirconia, tantalum oxide, boron carbide, silicon carbide, titanium carbide, diamond and combinations thereof.

16. (Original): The ball valve of claim ~~12~~ wherein the coating has a thickness from 100 to 500 microns.

17. (Cancelled)

18. (Original): The ball valve of claim ~~12~~ wherein the coating has a ground and polished surface.

19. (Original): The ball valve of claim ~~18~~ wherein the coating is deposited by thermal spray application of a powder comprising spherical agglomerates in a size range of from 10 to 45 microns comprising a mixture of ultrafine particles of less than 0.3 microns.

20. (Previously presented): A pressure acid leaching process comprising alternately opening and closing the ball valve of claim ~~12~~ to respectively allow and stop passage of an acid leach mixture comprising abrasive particles in a solution of sulfuric acid at a temperature above 250°C and pressure above 4000 kPa.

21. (Cancelled)

22. (Cancelled)

23. (Cancelled)

24. (Cancelled)

PAGE 6/20 * RCVD AT 1/19/2004 10:00:13 PM [Eastern Standard Time] * SVR:USPT -EPXRF-1/1 * DNIS:8729310 * CSID:7136522556 * DURATION (mm-ss):09-16

9 1
~~25.~~ (Currently amended): The invention of claim ~~12~~ wherein the ~~ultrafine particles are~~ titania coating comprises nanostructured ultrafine particles.

25
26. (Currently amended): The invention of claim ~~20~~ wherein the ~~ultrafine particles are~~ titania coating comprises nanostructured ultrafine particles.

27. (Cancelled)

1
10 ~~28.~~ (Previously presented): The ball valve of claim ~~12~~ wherein the coating has a grain size less than 300 nm.

1
17 ~~29.~~ (Previously presented): The ball valve of claim ~~12~~ wherein the coating has a grain size less than 100 nm.

10
11 ~~30.~~ (Previously presented): The ball valve of claim ~~28~~ wherein the coating comprises a titania phase and a phase immiscible with the titania phase in a proportion effective to inhibit grain growth.

11
12 ~~31.~~ (Previously presented): The ball valve of claim ~~30~~ wherein the immiscible phase comprises from 5 to 45 percent by volume of the coating.

11
13 ~~32.~~ (Previously presented): The ball valve of claim ~~30~~ wherein the immiscible phase is selected from zirconia, tantalum oxide, boron carbide, silicon carbide, titanium carbide, diamond and combinations thereof.

14 10
~~33.~~ (Previously presented): The ball valve of claim ~~28~~ wherein the coating has a thickness from 100 to 500 microns.

15 10
~~34.~~ (Previously presented): The ball valve of claim ~~28~~ wherein the coating has a ground and polished finish.

16 15
~~35.~~ (Previously presented): The ball valve of claim ~~34~~ wherein the coating is deposited by thermal spray application of a powder comprising spherical agglomerates in a size range from 10 to 45 microns comprising a mixture of ultrafine particles of less than 300 nm.

27 25
~~36.~~ (Previously presented): The process of claim ~~20~~, wherein the solution is at least 98 percent sulfuric acid.

PAGE 7/20 * RCVD AT 1/19/2004 10:00:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729310 * CSID:7136522556 * DURATION (mm-ss):09-18

18 1
~~37.~~ (New): The ball valve of claim ~~12,~~ wherein the coating has a uniform composition.

22 1
~~38.~~ (New): The ball valve of claim ~~12,~~ wherein the titania coating is bonded directly to the titanium substrate.

19 18
~~39.~~ (New): The ball valve of claim ~~37~~, wherein the titania coating is bonded directly to the titanium substrate.

23 1
~~40.~~ (New): The ball valve of claim ~~12~~, wherein the titania coating is bonded to a roughened surface of the titanium substrate.

20 18
~~41.~~ (New): The ball valve of claim ~~37~~, wherein the titania coating is bonded to a roughened surface of the titanium substrate.

8 7
~~42.~~ (New): The ball valve of claim ~~19~~, wherein the titania coating has a uniform composition and is bonded directly to a pre-roughened surface of the titanium substrate.

24 23
~~43.~~ (New): The ball valve of claim ~~40~~ wherein the roughened surface is grit blasted to 2-3 mils (50-80 microns).

21 20
~~44.~~ (New): The ball valve of claim ~~41~~ wherein the roughened surface is grit blasted to 2-3 mils (50-80 microns).

PAGE 8/20 * RCVD AT 1/19/2004 10:00:13 PM [Eastern Standard Time] * SVR:USPTO-EFXRF-1/1 * DNIS:8729310 * CSID:7136522556 * DURATION (mm-ss):09-16